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**TWO GREAT CW SUPERSTORES**

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# POWERBOOK 145B



## A PowerBook for less than £800!

CW's just knocked out with this super PowerBook deal! The PowerBook 145B is the most affordable Macintosh notebook and as powerful as many desktop machines. It has a CW easy-look monochrome backlit supertwist display, is easy to use and fits right into your Christmas budget.

- Motorola 68030 processor running at 25Mhz
- 4Mb RAM (max 8Mb)
- 80Mb Hard Drive
- Mono backlit supertwist display
- SCSI port
- Optional internal fax/modem
- Two serial ports + ADB
- Security slot
- Will not run external display



### Powerbook 145B

- 25Mhz 68030
- Supertwist backlit mono screen
- 4-8Mb RAM
- 80Mb Hard Drive
- Built-in floppy disk drive
- Optional Fax/Modem
- Stunning Christmas deal from CW!

**POWERBOOK 145B 4/80**

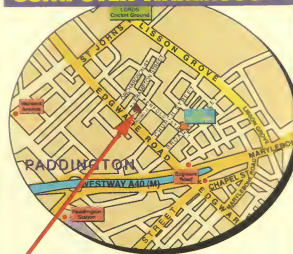
**£799**

EX VAT £858 inc VAT



To celebrate the opening of the second Warehouse Superstore in Park Royal, and the festive season, CW's slashed prices still further! Why not come along to the new store, or visit the original in Hatton street, and grab a Christmas bargain! Loads of Christmas gift ideas from £3.99!

## COMPUTER WAREHOUSE 1



Just off Edgware Road

## COMPUTER WAREHOUSE 2



Round the corner from Hanger Lane

# POWERBOOK 165 SAVE!

**BUNDLE WITH FAX/MODEM**

**£1099.00**



**BUNDLE WITH WORKS**

**£1099.00**

**LIMITED STOCKS AT THIS PRICE**

### Powerbook 165

- 33Mhz 68030
- 16 grey level Supertwist backlit screen
- Runs external colour monitors direct
- 4-14Mb RAM
- 80Mb Hard Drive
- Built-in floppy disk drive
- Optional Fax/Modem



## POWERBOOK 165 EXCELLENT VALUE

A 33MHZ MACINTOSH NOTEBOOK FOR UNDER £1000!

Supertwist display providing 16 levels of grey lets you display crisp text and CW stunning graphics. It's also CW fast with a Motorola 68030 running at a speedy 33MHz - that's quicker than a IIci and IIvx!

- 33MHz Motorola 68030 processor
- 4Mb RAM (max 14Mb)
- 80Mb drive (160Mb option)
- Direct colour display output - connect external Apple & VGA monitors

**POWERBOOK 165 4/80**

**POWERBOOK 165**  
4Mb RAM  
80Mb H. DISK

**£999**

EX VAT £1114 inc VAT

## POWERBOOK 180c



**P/BOOK 180c**  
4Mb RAM  
160Mb HARD DRIVE

**£1899**

### PowerBook 180c

Amazing CW performance and a great active matrix colour display make this the best notebook you can buy. Mega-fast 68030 running at 33MHz gives you all the power you need PLUS 256 colours!

- 33MHz 68030 • Math co-processor
- 4Mb RAM (exp to 14Mb) • 160Mb H. Drive
- 640 x 480 pixel active matrix 256 colour display
- Optional fax/modem
- Direct colour display output

**FREE WITH 180C**  
MICROSOFT OFFICE  
MACLINK PLUS  
CARRY CASE

**SPECIAL DEAL!!**



## PowerBook Duo 230

As the entry-level PowerBook Duo, the 230 packs a great deal of performance into a cost-effective package. CW loves the bright, backlit supertwist display and the speedy 33MHz 68030 processor.

- Motorola 68030 @ 33MHz
- Weighs only 4.2 pounds
- 4Mb RAM (exp to 24Mb)
- Choice of 80Mb or 120Mb internal hard drive
- 16 grey level supertwist screen
- LocalTalk port
- Optional choice of Docks
- Add Floppy adaptor & 3.5" drive for only £50!

**DUO 230 4/80**

**£749**

**NEW AT CW NOW**



## PowerBook Duo 270c

The top-of-the-range PowerBook Duo and a real dandy! CW recommended to those users who demand maximum performance and exquisite colour whilst on the move. The hard drive provides 240Mb of storage.

- Motorola 68030 @ 33MHz
- 4Mb RAM (exp to 32Mb)
- 240Mb hard drive
- Colour active-matrix screen with 1,000s colours
- LocalTalk port
- Optional Express Fax/data modem
- Optional Mini or Duo Dock
- Come check it out at CW's favourite Warehouses now!

**DUO 270c 4/240**

**£1999**

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## LOWEST PRICES

CW's HUGE buying power means he can offer the absolute LOWEST UK prices.



## VISIT A WAREHOUSE

Two great Superstores packed with Macintosh hardware & software deals!

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## Apple Select 310 \*LIMITED OFFER\*



**POSTSCRIPT LASER FOR LESS THAN £550!**  
YES! A quality 300dpi Adobe Postscript A4 laser printer with 39 scalable fonts and speedy 5 page-per-minute operation. These have been selling like hot cakes so hurry!

- RISC processing • Great graphics
- True Adobe Postscript
- Prints from Mac or Windows
- 250 sheet tray • A4 paper size

**SELECT 310 POSTSCRIPT**  
APPLE SELECT 310 LASER  
SAVE £££  
**£599**

## A3 Apple Color Printer

SAVE £££'s TODAY THE CW WAY!



**APPLE COLOR PRINTER**  
APPLE COLOR PRINTER  
SAVE £££'s  
**£499**

- 360dpi ink-jet engine for superior quality • ColorSync included
- Plain paper or transparency
- 64 scalable TrueType fonts
- SCSI connection
- Prints to A3!

**A3 COLOUR PRINTER FOR LESS THAN £500!**  
Look at the features, check the spec and the ogle the amazing CW price. No you're not dreaming. This superb 360dpi A3 colour printer is now at a crazy low price! Ideal for presentations, scamps, OHP's etc etc.

## GREAT SOFTWARE FOR YOUR LC AT JUST...

**£49**

All these packages are available at just £49 each!

- **ALDUS SUPERPAINT** Draw / Paint.....**£49**
- **ALDUS INTELLIDRAW** Illustration.....**£49**
- **ALDUS PERSONAL PRESS** DTP.....**£49**
- **WRITE NOW** Word Processor.....**£49**
- **CLARIS RESOLVE** Spreadsheet.....**£49**
- **SYMANTEC GREATWORKS**.....**£49**

## LCIII MEGA DEAL



### ADD A COLOUR MONITOR

LCIII + 4Mb RAM, 80Mb Hard Drive, 14" Performa Plus Colour Display.....**£699**

### LCIII 4Mb RAM 80Mb H. DRIVE

LCIII  
KEYBOARD  
4Mb RAM  
80Mb HARD DRIVE  
**£549**

## MACINTOSH LC 475

### QUADRA POWER IN A SLIMLINE LC CASE!

The entry-level 68040 Macintosh at an amazingly low CW price! This superb general use machine features a Motorola 68040 clocked at 25Mhz, integral memory management and an 8K cache which means it's ready to rip through your business, entertainment and education applications with gusto. It includes support for all Apple displays, including the Macintosh 21" Colour Display and comes complete with 4Mb of RAM and an 80Mb Hard Drive.

- 25Mhz 68040 - as fast as a Quadra 700!
- 4Mb RAM (expandable to 36Mb)
- 160Mb Internal hard drive
- Processor Direct Slot for expansion
- Built-in monitor support to 21"
- System software
- Desktop Mouse
- Energy Star compliant
- Almost as fast as a Quadra 700!

### CHOOSE YOUR CONFIGURATION

- LC475 + 4Mb RAM, 80Mb Hard Drive, 14" Performa Plus Colour Display.....**£799**
- LC475 + 4Mb RAM, 160Mb Hard Drive, 14" Performa Plus Colour Display.....**£849**
- LC475 + 8Mb RAM, 80Mb Hard Drive, 14" Performa Plus Colour Display.....**£899**

### LC475 4Mb RAM, 160Mb DRIVE

LC475  
NO KEYBOARD  
4Mb RAM  
160Mb HARD DRIVE  
**£699**

## MACINTOSH LC III

The superb LCIII features a zippy Motorola 68030 processor running at 25Mhz which makes it the

ideal machine for general business, education and home entertainment tasks.

And now CW's favourite Warehouse superstores have it on a great Christmas deal.

- But hurry, at this great price saving they won't hang about!

- Motorola 68030 processor running at 25Mhz
- 4Mb RAM - expandable to 36Mb!
- 80Mb Hard Drive (Optional 160Mb drive)
- LC expansion slot
- System 7 software, mouse and keyboard included
- Almost as fast as a Mac IIci or IIx!

## SUPER BUNDLE

- LCIII with 4Mb RAM and an 80Mb Hard Drive.
- Standard Apple Keyboard, Desktop Mouse
- Performa Plus 14" Colour Display (28 dot pitch, 640 x 480 resolution)
- Apple StyleWriter II inkjet printer

### LCIII + PRINTER DEAL

LCIII 4/80  
14" Col. Mon  
StyleWriter II  
**£949**



**ADD CLARISWORKS FOR JUST £50!**

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Authorised Reseller

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At the first Noel the angels did say - "We're happy we bought the CW way!"

It's The Bumper CW Christmas Sale!



### NOT ONE BUT TWO!

Yep! The two best Macintosh stores are ready to greet you with bargains galore!



### SPEEDY MAIL ORDER

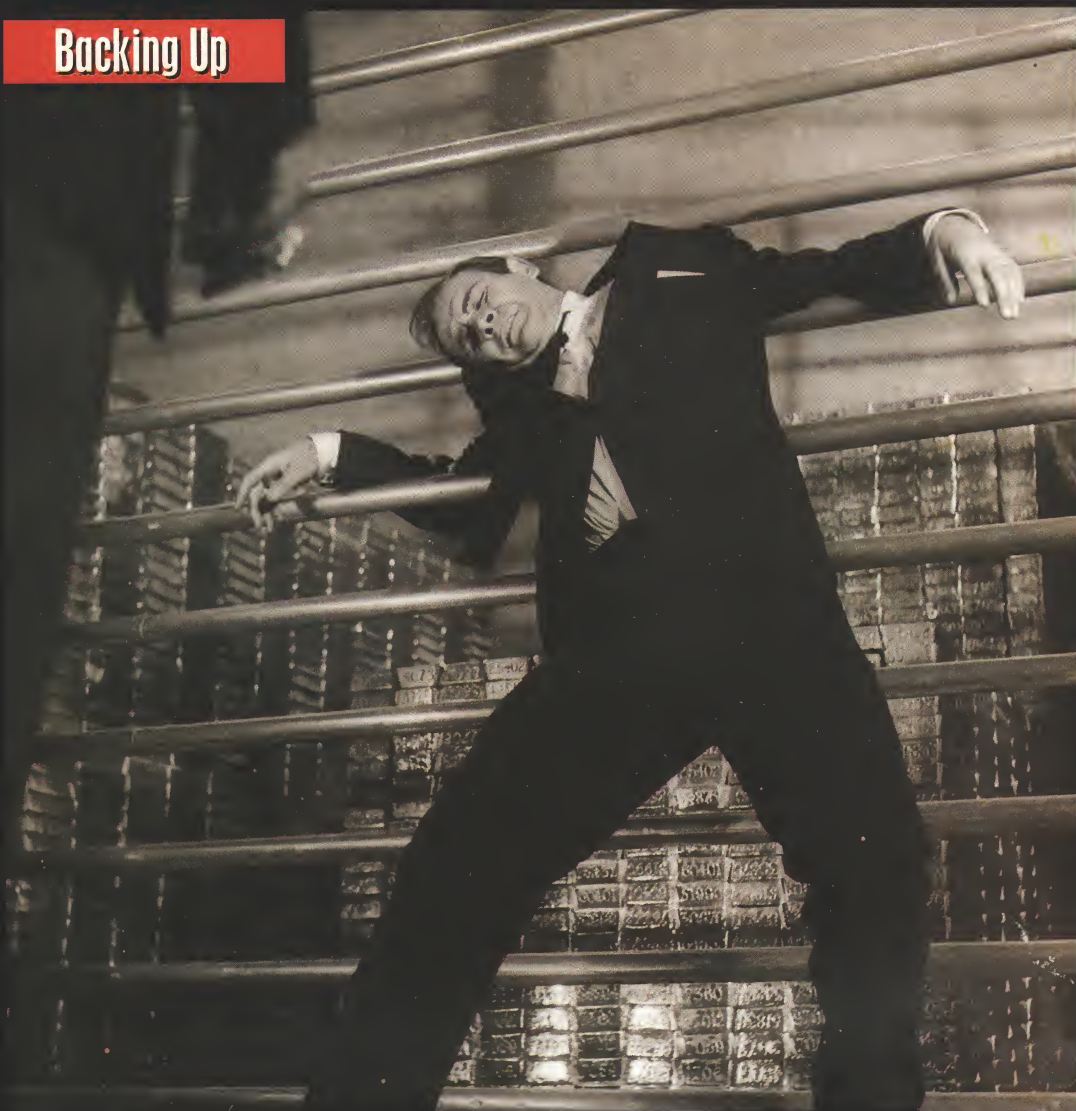
Don't go searching hither and dither when 'ol CW can deliver!



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# Shaken But Not Stored

BACKING-UP CAN SAVE YOUR LIFE'S WORK — AND YOUR BACON. SO HOW OFTEN DO YOU DO IT? NOT OFTEN ENOUGH, RECKONS STEVE BOBKER.

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**M**OST NEW users are advised to back up the data on their Macs. It's a sound suggestion — the programs and data on your hard disk (floppies too, for that matter) aren't permanent. It shouldn't happen very often, but sometimes information does become corrupted and your vital files are no longer accessible. If your Mac gets stolen or destroyed the result is the same.

The solution is to keep a separate copy of all your important data and applications —

creating a back-up. That way, if something does go wrong, you can quickly restore the information that's been lost. This is essential. Your hardware, expensive though it is, is insurable and replaceable. Your data, unless you've taken precautions, isn't. Losing your hardware is bad — losing your data is worse.

Apple has long recognised this problem, and continues to ship new Macs with a back-up utility. Unfortunately, even though this software is usable, it remains slow and relatively feeble. Most users, after doing one or





two back-up runs, usually relegate it to the Wastebasket. They end up with a single copy of their hard disk which rapidly becomes out of date.

And then Murphy's Law strikes.

Computers seem to have a knack of spotting the worst time to fall over. They know just when you've finished several hours of work on some spreadsheet, graphic or report without saving it at regular intervals (in the heat of creation, even the best of us forget to do that). They know your last back-up has crumbled into dust. And that's when they crash. If they were human at that point, they would have huge smiles pasted all over their faces.

The way to keep a step or two ahead of them is to back up your data at regular intervals using proper hardware and software.

## When...

Back up your hard disk as often as it takes to ensure all your valuable information can be recreated, completely. If you produce very complex files or large amounts of data, backing up more than once a day is not only reasonable, it's essential.

If you use your Mac all day long, put aside time every evening to back up the day's work. If you're a casual or part-time user, do it once a week. In either case, if you leave it any longer, chances are you'll forget to do it one day.

For that reason it's important to maintain a good back-up schedule and make backing-up your data a habit. Fortunately, the right kind of back-up software will automate the process, duplicating your hard disk whether you're there or not.

## What...

Running a regular back-up schedule should also mean you won't need to copy all your files. It's only really necessary to duplicate files that have changed since you last

backed up, creating what's called an 'incremental back-up'. Good back-up software should be able to check which files need copying and which don't – you can do it yourself, but the time

taken to check everything will probably kill the advantage you get from having to back-up fewer files.

What you should back up also depends on the hardware you're using. If your back-up medium is any kind of tape system or a removable hard disk cartridge like a SyQuest or a Bernoulli, back up everything. If you're copying to floppy disks, restrict yourself to your System Folder and your data. Forget the applications – they can always be reinstalled from the master disks.

Most decent back-up programs will give the option of automatically excluding applications. Use this if you're saving files on floppies.

## Where...

The first and most important decision you need to make when embarking on a regular back-up schedule is the medium on which you're going to save your data. Like most purchase choices, it's a balance between cost and flexibility.

## Floppy Disks

Everyone except some PowerBook 100 and Duo owners has a floppy drive. You don't have to buy additional hardware – all you need is the back-up software and disks. You also need plenty of spare time and patience. The floppy drive is very slow compared to all other storage devices – a full back-up of an 80Mb drive can take several hours.

And that's before you've formatted all those floppies. It's best to format disks before you begin a back-up run, even if your software can format disks automatically. Either way, try to find pre-formatted disks. If you're stuck with completely blank disks, use the Finder or a formatting utility like the shareware Fast Formatter.

The other problem with floppies – apart from the drive's lack of speed – is that they are easy to mislay. They're also easy to corrupt. For those reasons, it's best to opt for a back-up package that can reconstruct data from an incomplete or damaged back-up set. If all that makes floppies sound a poor option for your back-up medium, don't forget that they are the cheapest solution.

**Benefits** Cheap – no additional hardware required  
**Drawbacks** Slow – backing-up to floppies is a real chore

**Bobker Says** Better than nothing

## Hard Disk Cartridges

These large, square cartridges each contain a single hard disk and offer storage capacities from 40Mb to 150Mb.

The drives can be connected through the Mac's SCSI port and range in price from £300 to £1000. They're moderately fast and easy to work with, and many output bureaux have cartridge drives, so if you do a lot of professional DTP work, your back-up system can double up as a very large floppy disk.

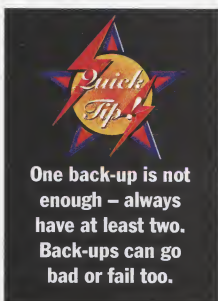
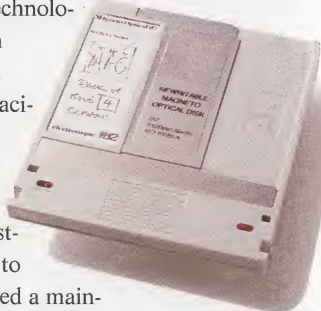
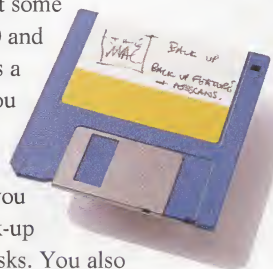
The downside is that they have a tendency to corrupt over time. Just like fixed hard disks, they can be very easily damaged by environmental contaminants. Fixed disks are sealed in a vacuum so they are well-protected – cartridges aren't. Don't trust them for data you might want to take a look at in a few years' time.

**Benefits** Widely used, relatively inexpensive and fast. The larger capacity disks will prove more economical in the long run  
**Drawbacks** Lack of long-term reliability and the disks are bulky  
**Bobker Says** Useful, but check out less wildy or corruptible options

## Magneto-Optical Drives

This new technology comes in 128Mb and 650Mb capacities. The 650s are very pricey and well-tested, enough to be considered a mainstream back-up kit. The 128s are another story. Drive prices are falling rapidly, they're well under £1000 now, and the cost per megabyte is very reasonable.

Unfortunately, a standard format has yet to emerge. Drives from one manufacturer can't be guaranteed to read disks recorded in a rival's machine. You also need to ensure your back-up software supports these new units. Try Retrospect 2.0, which







supports all the major brands.

**Benefits** *Excellent cost per megabyte, plus good speed and reliability*

**Drawbacks** *Lack of universal support and brand incompatibilities. It has yet to be really proved as a mainstream back-up system*

**Bobker Says** *A real contender if your Mac's disk is 120Mb or smaller*

## Recordable CD-ROMs

CD-Recordable (CD-R) is the latest development in CD-ROM. This new format allows you to record your data on a blank CD-R disk. It is essentially a write-once media, but some CD-Recordable drives support multi-session recording which allows you to write onto an area of the disc where data has not already been recorded.



CD-R drives are still very expensive, prices range between £3500 and £7000. A bureau will write a CD-ROM disc for you from a hard disk, SyQuest, optical, tape or floppies. This costs around £120 per disc.

**Benefits** *Less risk of corruption over time than other forms of back-up*

**Drawbacks** *Write once only media*

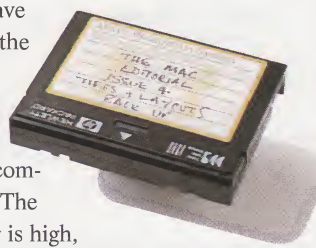
**Bobker Says** *Fine for archiving, less so for back-ups*

## Digital Audio Tape

DAT may have failed to set the music world alight, but it has fared better with computer users. The initial outlay is high, but once a DAT system is up and running, they are very fast and highly reliable. You'll also find the cost per megabyte is astounding – the smallest tape and least capable DAT drive can easily store about 1.3 gigabytes (Gb) of data (more than 16 80Mb SyQuest drives) per tape. Longer tapes and special data compression hardware can push that up to 8Gb.

The use of a single tape for almost all back-up runs also makes scheduled, unattended back-ups a doddle. And the small cassette size means you can easily keep back-up sets in the bank.

After trying all the technologies, except MO, this is the system I went for. I've been using my set-up daily for nearly four years and I'm still using my original drive. The



cost per megabyte is well under £1 – that's a lot of security for little money. All I do is extract the tape recorded the previous night and slot a new one in for the next scheduled run. Couldn't be easier.


**Benefits** *Very high speed, very low media cost. Total reliability and very easy to use*

**Drawbacks** *The drives are very expensive*

**Bobker Says** *The way to go – if you can afford the initial outlay*

## The Plan

Backing up isn't a casual activity to be carried out only when you have the time. You need to draw up a plan that you can stick to, ideally one that uses your Mac to keep



**Make sure the restore process works when the pressure is off. If you wait until a crisis strikes, you may discover that you've done something wrong and what you thought was a back-up isn't.**

track of what's been done and make back-ups automatically. Buy a package that does this or write out a schedule chart.

Here's a typical case. Let's assume you have about 300Mb of hard disk to back up and it's copied to tape. Create two back-ups and call them 'Odd days' and 'Even days' and run them accordingly. Even if you make lots of changes to your data, the process shouldn't take more than half an hour a day.

Once a week back-up the whole of your hard disk on another tape. Store that one out of your home or office – a bank vault is excellent. When you put the tape away, pick up the one already there and re-use the tape next time.

In this way, you'll always have a back-up tape at hand which is only one day old, and if a major disaster strikes, you have a copy that's no more than a week old.

**Steve Bobker runs a Mac consultancy in the US**

## WHERE TO BUY

### HARDWARE

*Available from your local computer warehouse or dealer.*

#### Floppy Disks

Go for a name brand for the best quality. 1.4Mb disks will cost about 85p each, 800K floppies are available for around 55p.

#### Removable Hard-Disk Cartridges

Low-capacity disks are risky for long term storage – they're OK for a year or two – and cost around £55 for 44Mb. A 105Mb cartridge will cost £85.

#### Magneto-Optical Cartridges


About £80 for a 128Mb disk.

#### Recordable CD-ROMs

Drives cost between £3500 and £7000; discs £20. A bureau will write one for you from floppy for £120.

#### Digital Audio Tape Drives

Between £15 and £25 for a 2Gb tape (labelled as 90m).



**If you're using DAT, bear in mind there are two grades of tape: audio and computer. They look the same and may even cost the same, but they're different. Use computer grade – or you'll be sorry.**

### SOFTWARE

#### Retrospect 2.0

The class product. It can back-up to every media from floppies to magneto-optical drives and is especially good with tape. A remote version lets you back up networked Macs over Ethernet or LocalTalk. It's also superb at scheduled, unattended back-ups. Worth every bit of its £189 price tag. The remote version, which includes software for the host and ten other, remote Macs, costs £339. Contact Principal 0706 831831.

#### Netstream

The interface can be confusing, but it is a powerful program that works with any medium and has good scheduling abilities, all for £149. Contact Premier 081-861 2033.

#### Redux 1.63

A local back-up program best suited to backing up to floppies. For that task, it's the best. Nice interface and, at £59.99, nice price. Contact Softline 081-401 1234.

#### DiskFit Pro

A capable back-up package that works both locally and over networks. Not quite in Retrospect's class but at £99 it's much cheaper. Contact Principal 0706 831831.

